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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/063,094	03/19/2002	Barry Lee-Mean Yang	RD-27190-2	8181
6147	7590	11/14/2003	EXAMINER	
GENERAL ELECTRIC COMPANY GLOBAL RESEARCH CENTER PATENT DOCKET RM. 4A59 PO BOX 8, BLDG. K-1 ROSS NISKAYUNA, NY 12309			MEEKS, TIMOTHY HOWARD	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 11/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/063,094	YANG ET AL.	
	Examiner	Art Unit	
	Timothy H. Meeks	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-35 and 37-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-35 and 37-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is made in response to the amendment filed on 26 September 2003 (the 0903 amendment).

Election/Restrictions

Applicants' affirmation of the election with traverse of claims 24-35 is acknowledged. Claim 36 has been canceled. Claims 24-35 and new claims 37-40 are under consideration.

Claim Interpretation

The examiner adopts applicants' definition of an "expanding thermal plasma" provided at page 6 of the 0903 amendment. The phrase does not limit the gas to argon or argon/hydrogen mixture.

Claim Rejections - 35 USC § 112

Claims 38-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 38-40 fail to further limit a previous claim in that they all depend from claim 40. It appears that the dependency should be from claim 37 rather than claim 40. In claim 39, proper antecedent basis is lacking for "the at least one portion". It is believed that amending this claim to depend from claim 38 would clarify the language.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 24-35 and 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 887110 in view of Chan et al. (5,441,624).

The following limitations of claims 24 and 35 are disclosed in EP 887110:

- “coating a polycarbonate substrate” (page 2, lines 45-46);
- providing an expanding thermal plasma means located outside and in fluid communication with a deposition chamber (figure 1);
- maintaining the expanding thermal plasma means at a pressure greater than the deposition chamber (inherently performed as the plasma generator is located outside the vacuum

environment and has a much smaller volume than the chamber into which gas is injected for forming the plasma);

- providing at least one reagent to the plasma to form a coating (page 3);
- “generating”.....a thermal plasma plume to produce a coating on the substrate (page 2, lines 33-55); and
- “said coatings being silica-based” and forming argon or argon-oxygen plasma (Table 1).

EP 887110 fails to explicitly disclose that multiple expanding thermal plasma plumes are generated with their central axes being parallel or being codirectionally oriented or moving the substrates past the plumes to deposit successive coatings but does disclose desirability to coat large area substrates and increase deposition rate (page 3, lines 1-5).

Chan et al. disclose that providing a plurality of coaxial arc sources allows for coating “a large area and/or to sequentially deposit a series of layers each of a different material”. (col. 2, lines 40-45, figures 7 and 8, col. 7, lines 38-68). Given the disclosure of EP 887110 of the desirability to coat a large area and the disclosure of Chan et al. that providing plural coaxial arc sources affords the capability to coat large areas, it would have been obvious to one of ordinary skill in the art to have provided plural expanded thermal plasma plumes in a coaxial arrangement so as to provide the ability to coat a larger area of the substrate which would have the inherent advantage of increasing process throughput for coating substrates larger than that covered by a single expanding thermal plasma plume.

The dependent claims are disclosed or suggested as follows:

- Claims 25-28 (page 1, lines 45-46 and Table 1 of EP 887110);
- Claims 29-33 and 38-40 (col. 7, lines 38-68 of Chan et al., the substrates will inherently be heated by the thermal plasma during coating and as required by claim 40 "at least one portion" of the substrate would inherently be heated uniformly in this process).
- Claim 34 (page 2, lines 15-20 disclosing use of the polycarbonate substrates in glazing and optical applications which typically require curved substrates).

Claims 24-30, 32-35, and 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 887110 in view of Ackermann et al. (5,062,508).

The following limitations of claims 24 and 35 are disclosed in EP 887110:

- "coating a polycarbonate substrate" (page 2, lines 45-46);
- providing an expanding thermal plasma means located outside and in fluid communication with a deposition chamber (figure 1);
- maintaining the expanding thermal plasma means at a pressure greater than the deposition chamber (inherently performed as the plasma generator is located outside the vacuum environment and has a much smaller volume than the chamber into which gas is injected for forming the plasma);
- providing at least one reagent to the plasma to form a coating (page 3);
- "generating".....a thermal plasma plume to produce a coating on the substrate (page 2, lines 33-55); and
- "said coatings being silica-based" and forming argon or argon-oxygen plasma (Table 1).

EP 887110 fails to explicitly disclose that multiple expanding thermal plasma plumes are generated with their central axes being parallel or being codirectionally oriented or moving the substrates past the plumes to deposit successive coatings but does disclose desirability to coat large area substrates and increase deposition rate (page 3, lines 1-5).

Ackermann et al. disclose that providing a plurality of plasma sources in parallel over a moving substrate is effective "to increase the deposition rate". (col. 8, lines 5-20 and Figure 3). Given the disclosure of EP 887110 of the desirability to increase deposition rate and the disclosure of Ackermann et al. that providing plural plasma sources in parallel affords the capability to increase the deposition rate, it would have been obvious to one of ordinary skill in the art to have provided plural expanded thermal plasma plumes in a parallel, coaxial arrangement so as to provide the ability to increase the deposition rate which would have the inherent advantage of increasing process throughput for coating substrates larger than that covered by a single expanding thermal plasma plume.

The dependent claims are disclosed or suggested as follows:

- Claims 25-28 (page 1, lines 45-46 and Table 1 of EP 887110);
- Claims 29-30, 32-33, and 37-40 (col. 8, lines 5-20 and fig. 3 of Ackermann, the substrates will inherently be heated by the thermal plasma during coating and as required by claim 40 "at least one portion" of the substrate would inherently be heated uniformly in this process); and
- Claim 34 (page 2, lines 15-20 disclosing use of the polycarbonate substrates in glazing and optical applications which typically require curved substrates).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 24-35 and 37-40 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 32-43 of copending Application No. 09/683,149. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations of the instant claims are included in those of the '149 application, the "parallel" limitation of the instant claims being inherent given the claimed features of a planar substrate and an array of plasma sources in the '149 application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 24-35 and 37-40 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 35-48 of copending Application No. 09/683,148. Although the conflicting claims are not identical, they are not

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patentably distinct from each other because the limitations of the instant claims are included in those of the '148 application, the "parallel" limitation of the instant claims being inherent given the claimed features of a planar substrate and an array of plasma sources in the '148 application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

Applicant's arguments filed in the 0903 amendment have been fully considered but they are not persuasive.

Applicants argue that since Chan shows the plasma generators to be inside the vacuum chamber, the principal of operation of the expanding thermal plasma jet of the Ep reference would be destroyed if the references were combined. However, the rejection is based upon the teachings of the references as a whole. Chan discloses a desirability to use plural plasma sources so as to expand the area of the plasma. On the other hand the EP reference discloses that use of the expanding thermal plasma as a plasma source has the advantages of low temperature deposition on temperature sensitive substrates and improved coating quality and deposition rate (abstract, page 1) and seek large area coverage of the substrates as recited in the rejection above, therefore, one of ordinary skill in the art would clearly be motivated to use a plurality of expanding thermal plasmas to coat the substrates to achieve the advantages taught in the EP reference for using expanding thermal plasmas and those taught in Chan for using plural parallel plasma sources. One of ordinary skill in the art of plasma vapor deposition of coatings (assumed to be a Masters level engineer with several years experience in the industry) would clearly be

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capable of duplicating the expanding thermal plasma means shown in the EP reference to achieve these advantages.

Applicants argue that Ackermann teaches generating only a single plasma at col. 2, lines 40-55. As set forth at page 6 of the last office action, "Ackermann et al. disclose that providing a plurality of plasma sources in parallel over a moving substrate is effective "to increase the deposition rate". (col. 8, lines 5-20 and Figure 3)".

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

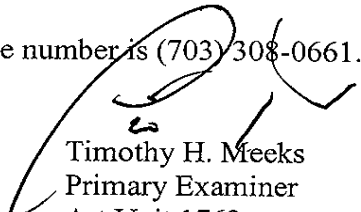
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy H. Meeks whose telephone number is (703) 308-3816. The examiner can normally be reached on Mon., Tues., Thurs.(6-6:30), Fri.(6:30-10:30).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (703) 308-2333. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Timothy H. Meeks
Primary Examiner
Art Unit 1762